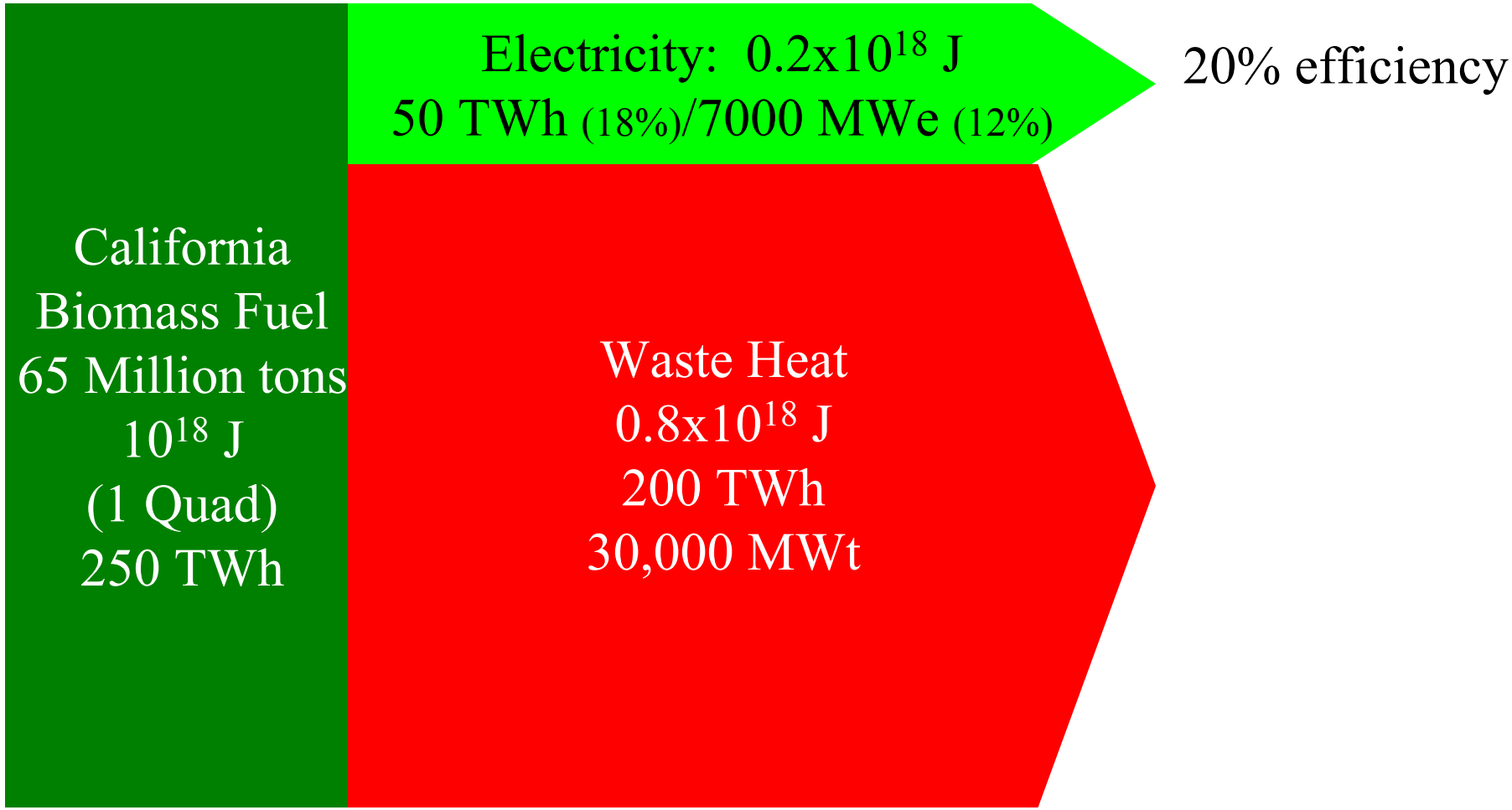
California Biomass Collaboration

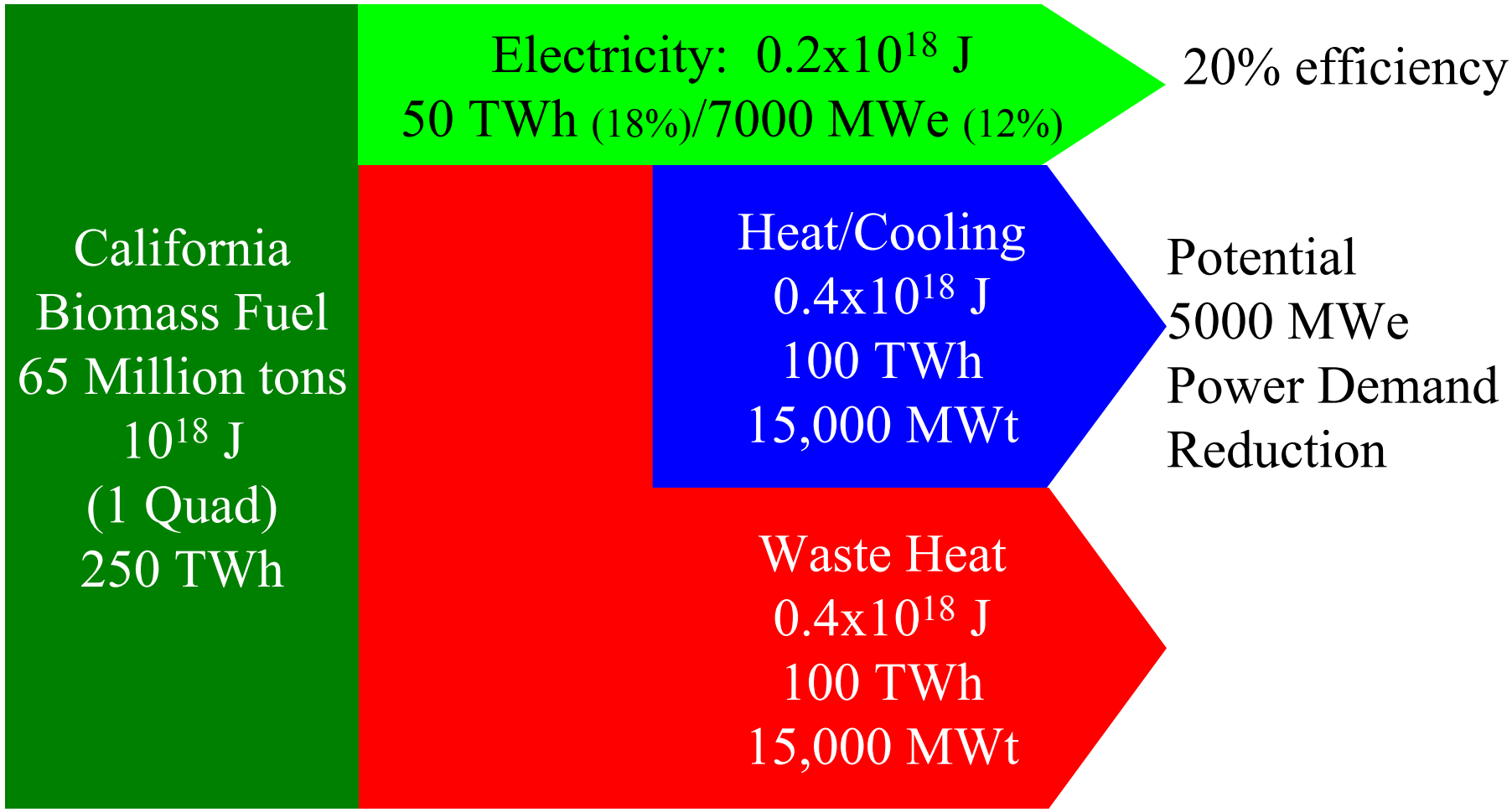
California Biomass Inventory

Biomass Type	Gross Quantity (million tons/y)	Available Quantity (million tons/y)
Wood Mill Residues	5.5	0
Forest Slash	4.5	2.5
Forest Thinnings	3.8	1.9
Chapparal	7.7	0.8
Urban Wood Fuel	3.2	0.7
Urban Yard Residues	3.9	1.2
Waste Paper	13.0	2.5
Waste Plastics	2.5	0.8
Tires	0.4	0.2
Sewage Sludge	0.7	0.6
Agricultural Field Crop	5.1	2.8
Agricultural Wood	2.0	1.4
Agricultural Processing	1.0	0.5
Manure	12.0	?
Total	65.3	15.9

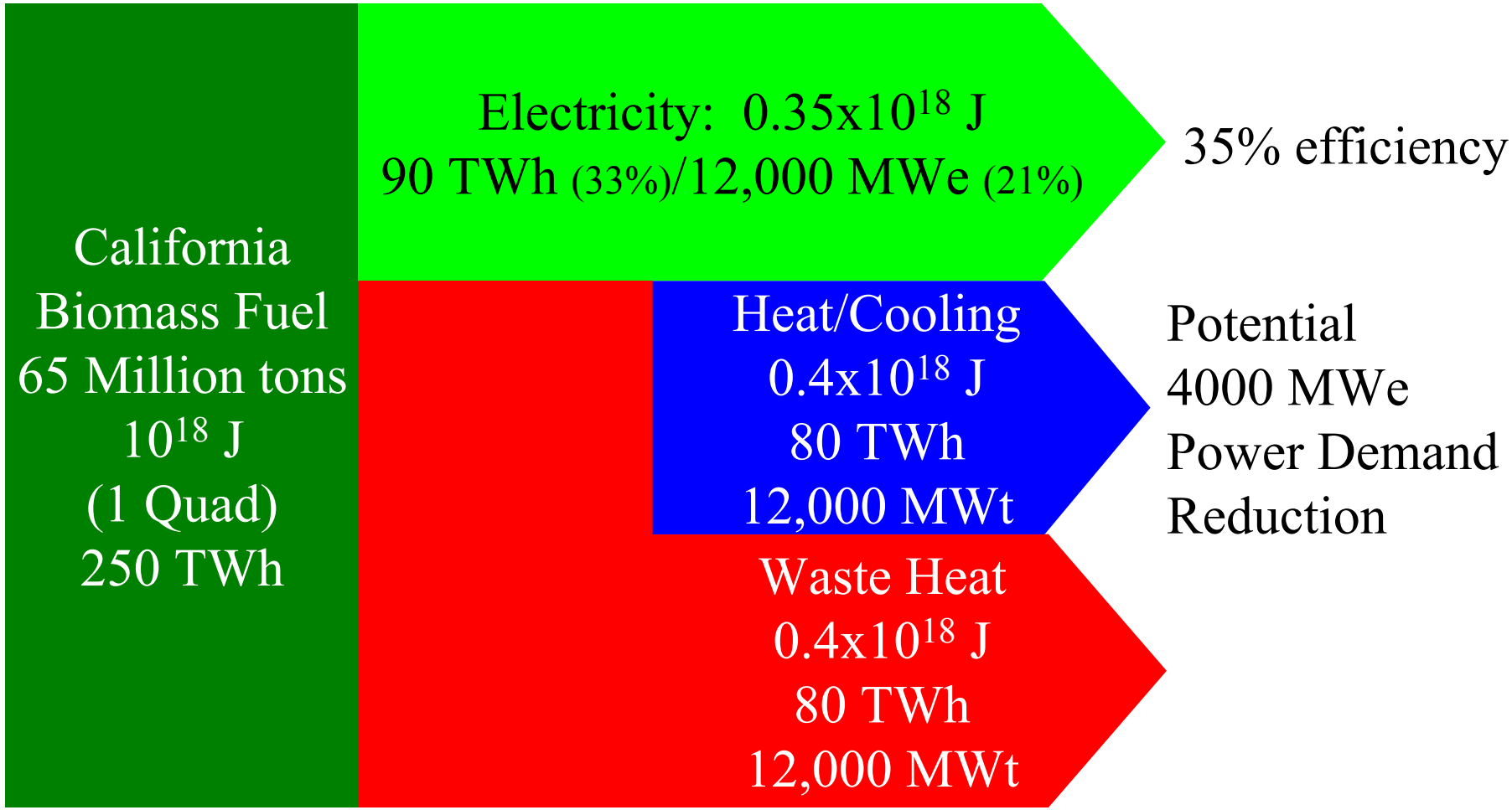
Biomass Potential in California



Biomass Potential in California -improved waste heat utilization



Biomass Potential in California - improved power technologies



Energy Crop Additions

- 1 million acres?
- 5 tons acre^{-1} y^{-1} ?
- 5 million tons y^{-1}
- 4 TWh of electricity (20% efficiency)
- 350 million gallons ethanol per year
- 0.5 million tons of Hydrogen per year
  = 0.07 EJ/y (18 TWh) heating value

Total Biomass

- 70 million gross dry tons per year
- 56 TWh of Electricity (20% efficiency)
- 100 TWh of Electricity (35% efficiency)
- 5 billion gallons Ethanol per year
- 7 million tons of Hydrogen per year

  = 1 EJ/y (250 TWh) heating value (net energy yield approximately half)

Actual production would likely be less than these optimistic estimates.

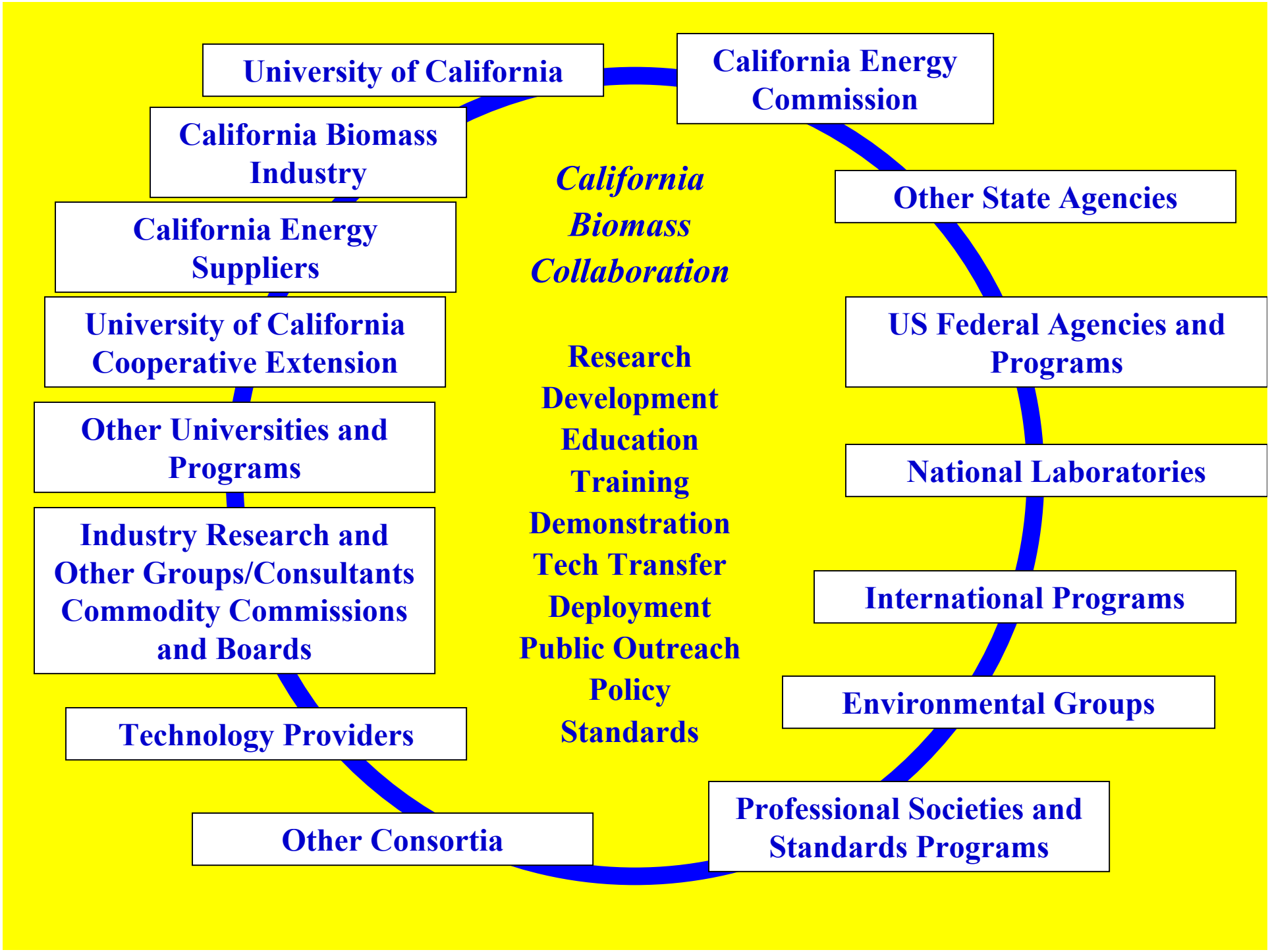
Mission

The mission of the California Biomass Collaboration is to enhance the development of sustainable and effective biomass energy systems for the State of California.

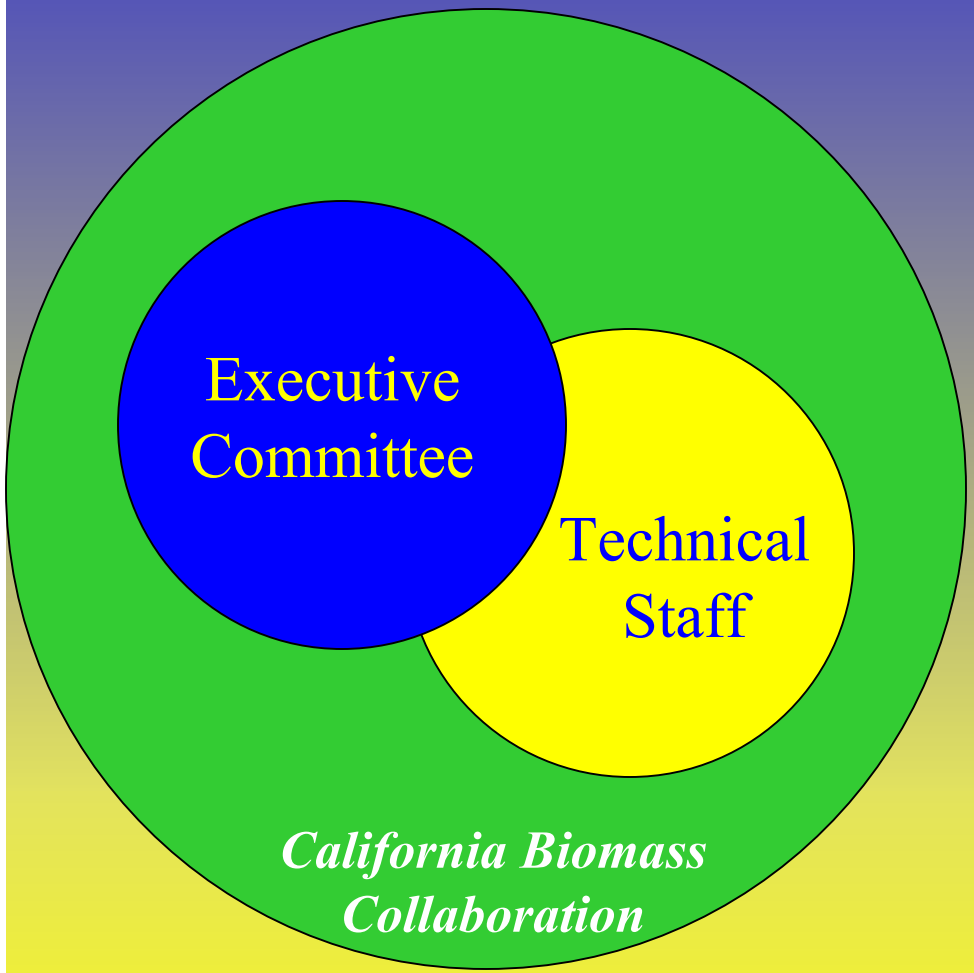
To fulfill this mission, the Collaboration plans to administer a comprehensive statewide collaborative program in scientific research and innovation, technology development, demonstration, and deployment, and education and training, to support and integrate efforts of the State in advancing efficient, safe, reliable, affordable, and environmentally sound biomass energy systems.

Collaboration Activities

- Statewide Coordination
- Resource Assessment
- Facility Performance Reporting and Evaluations
- Technology Research, Development, Demonstration, and Deployment
- Policy Issues and Implications
- Standards
- Research Management
- Education/Training
- Extension and Public Outreach


University of California
California Energy Commission
California Biomass Industry
Other State Agencies
California Energy Suppliers
California Biomass Collaboration
US Federal Agencies and Programs
University of California Cooperative Extension
Research
Development
Education
Training
Demonstration
Tech Transfer
Deployment
Public Outreach
Policy
Standards
Other Universities and Programs
National Laboratories
Industry Research and Other Groups/Consultants Commodity Commissions and Boards
International Programs
Environmental Groups
Technology Providers
Professional Societies and Standards Programs
Other Consortia

Administrative Structure



- **Collaboration Membership**
- **Executive Committee**
  - UC
  - Commission
  - Biomass Industry
  - Environmental Community
  - USDOE or National Lab
- **Technical Staff**
  - UC Executive Director
  - Technical Manager
  - Faculty, students, visiting researchers
  - Development engineers, clerical, other staff

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First Year Activities

- Establish Collaboration
- Build California Biomass Facilities Reporting System
- Conduct Resource and Power Generation Assessments
- Contribute to Statewide Strategic Value Assessment for Renewables
- Provide recommendations for continuing effort and structure

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Biomass Facilities Reporting System

- **Assessments of Technical, Economic, and Environmental Performance**
  - **biomass facilities of all types**
- **Collaborative Testing and Monitoring**
- **GIS/Web-based**

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Biomass Resource Assessment

- Resource Assessments
  - GIS models/web-based information programs
  - Gross and available resources
  - Management techniques/supply chains/logistics
  - Methods to increase production
  - Economic/Life Cycle Assessments
  - White Paper/Recommendations

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Power Generation Assessment

- New and emerging biomass fueled generation technologies
  - Grid, distributed, remote
  - Peaking, transmission, fuel logistics
- Economic models/Optimization/Strategic Value
- White Paper/Recommendations

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Collaboration Budget

- First Year:
  - CEC PIER for establishment
- Subsequent years:
  - Increasing activity in all areas
  - Increasingly supported from industry sources with diverse participation